The Savannah River Plant (SRP) produces nuclear materials, primarily plutonium and tritium, to meet requirements of the Department of Defense for nuclear weapons. Major plant facilities were built during 1950-1955. The nuclear products are formed by irradiation of materials in nuclear reactors and recovered by chemical separations processes. Waste effluents from all plant operations and all wastes that are stored at SRP are controlled in accordance with policies established by the Atomic Energy Commission (AEC), and adopted by the Energy Research and Development Administration (ERDA). The basic ERDA objectives of waste management are to:

- Protect the health and safety of employees and the public.
- Protect man's environment.
- Contain and store high-level radioactive waste.
- Solidify liquid high-level waste to safer immobile forms.

These policies require continued assessment and revision of waste management practices and plans so as to minimize adverse effects on the environment below guidelines to the extent deemed technically and economically practical.

The most significant environmental effect of normal effluents from waste management operations is exposure of offsite individuals to small radiation doses from unavoidable releases of radioactive materials. At low radiation levels, the man-rem concept provides an upper-limit estimate of carcinogenic risk (Section III.A.3.). Releases to the atmosphere in 1975 resulted in a calculated dose commitment to a surrounding population of 668,000 within a 100-km radius of 115 man-rem, or about 0.15% of the dose to the same population from natural background radiation. From releases to the Savannah River via onsite streams in 1975, the calculated dose commitment to a water consumer population of 70,000 was 15.5 man-rem, or about 0.2% of the dose to this population from natural background radiation. From all SRP releases in 1975, the calculated whole-body dose to a hypothetical individual who resided at the plant boundary and consumed river water and 0.5 lb of river fish per week was 1.2 mrem, or 1.0% of the estimated 120-mrem dose

from natural background radiation in the vinicity of the site. Improvements are planned or in progress as part of a continuing effort to minimize radiation dose; these include better confinement of tritium gas and reduction in amounts of radionuclides sent to plant streams.

The most significant potential effect of plant waste storage operations is the exposure of offsite individuals to radiation doses from combinations of highly unlikely accidents and failures of backup protective devices. Using pessimistic assumptions, the potential dose to a hypothetical individual on the Savannah River just downstream from the plant was calculated to be a whole body dose of 3.9 rem. The emergency dose guideline for the evaluation of power reactors given in 10 CFR 100¹ is 25 rem to the whole body. The potential dose to an individual at the plant boundary from atmospheric dispersion after an accident was calculated to be a bone dose of 161 rem. The emergency guideline bone dose given in the design criteria for new plutonium facilities² is 150 rem.

Each section of the statement is summarized below. The summary may be used as a guide to the more detailed sections that follow. A glossary of terms and abbreviations is included in Appendix L.

A. BACKGROUND

Detailed Description

Waste Management Philosophy and Plans

Effects of normal effluents are minimized by:

- Confining all wastes on the plantsite wherever technically and economically practical rather than releasing them to undergo natural dispersion, dilution, and degradation.
- Controlling releases of individual radionuclides based on the best achievable operating practices.
- Controlling waste management operations so that annual exposure to offsite individuals is well below ERDA guidelines.

Potential releases of stored wastes are minimized by physical barriers such as steel tanks and concrete containers, by procedural controls, and by converting the wastes to less soluble and less mobile forms for storage to reduce the effects of any unexpected deficiencies in storage systems.

Location of Facilities

The locations of the major facilities at the Savannah River Plant relative to the Savannah River and surrounding communities in South Carolina and Georgia are shown in Figures II-1 and II-2. The major potential sources of radioactive wastes are three nuclear production reactors (P, K, and C) and two chemical separations plants (F and H). Major waste storage facilities are two tank farms for liquid waste storage in F and H Areas, respectively, and a burial ground for solid waste storage between F and H Areas.

Processes Resulting in Waste Effluents

Nuclear production reactors (100 Areas). The three reactors (P, K, and C) are operated to produce primarily plutonium (239Pu) and tritium (T or 3H) for nuclear weapons. These products result from irradiation of other materials by neutrons from the nuclear fission process. This process also produces radioactive byproducts (fission products) and causes materials in and around the reactor vessels to become radioactive (activation products). The major products and byproducts remain contained in the solid fuel and target assemblies until they are dissolved in the chemical separations areas.

Releases to the atmosphere from reactor operations in 1975 included: about 159,000 curies (Ci) of tritium as water vapor (DTO); 39 Ci of carbon-14 as CO and CO_2 , primarily from activation of the heavy water (D_2O) used to cool the fuel assemblies and moderate the neutron flux; about 65,000 Ci of argon gas (41 Ar) from activation of natural argon in the air around the reactors; and about 4,000 Ci of short-lived krypton and xenon fission product gases that leaked from the fuel assemblies. This resulted in an average dose commitment of 0.41 mrem to an individual at the plant perimeter or 0.4% of the dose received from natural radiation in a year.

Releases to plant streams leading to the Savannah River included about 45,000 Ci of tritium and 1.5 Ci of a combination of activation products and fission products. This resulted in a dose commitment of 0.19 mrem to downstream consumers of river water or 0.16% of the dose received from natural sources in a year. Released to earthen seepage basins were about 22,000 Ci of tritium and 0.31 Ci of activation and fission products. The tritium released to seepage basins (reduced by radioactive decay in transit) ultimately reaches the atmosphere by evaporation or plant streams by slow transport through the ground water beneath the plant.

The large amount of heat generated by the nuclear reactions in the reactors is transferred in heat exchangers from the heavy water coolant to water pumped directly from the river or Par Pond, a man-made reservoir on the plantsite. The cooling water that flows back to the river releases most of its heat to the atmosphere and stream beds enroute. Similarly, hot water returned to Par Pond is cooled by evaporation and heat transfer to the atmosphere.

Chemical Separations Facilities (200 Areas). The two separations facilities (F and H) chemically separate and purify the major products from the fuel and target assemblies irradiated in the reactors. The fission products that remain after the separations operations are the major radioactive contributors to the wastes that are stored as liquids and solids in the tank farms.

Releases to the atmosphere from separations operations in 1975 included about 325,000 Ci of tritium,* 520,000 Ci of krypton (85 kr), 27 Ci of 14 C, 0.25 Ci of iodine (131 I and 129 I), and 0.003 Ci of plutonium. This resulted in an average dose commitment of 0.25 mrem to an individual at the plant perimeter or 0.2% of the dose received from natural radiation in a year.

Releases to plant streams included about 9,000 Ci of tritium, 1.4 Ci of fission product beta-gamma activity, and 0.007 Ci of alpha activity. This resulted in a dose commitment of 0.04 mrem to downstream users of river water or 0.03% of the dose received from natural sources in a year. Releases to seepage basins included about 14,000 Ci of tritium, 26 Ci of beta-gamma activity, and 0.18 Ci of plutonium.

Fuel and Target Fabrication (300 Area). The reactor Fuel and product target assemblies, in which products and byproducts are formed in the reactors, are manufactured in the 300-M Alea fabrication facility.

Releases in 1975 included about 2,200 1b (0.44 Ci) of uranium and 6,000 1b of chemical salts in solution to a plant stream, and about 250,000 1b of acids, bases, and salts in solution to a settling basin.

Heavy Water Production and Recovery (400 Area). Heavy water (D₂O) is extracted from river water and recovered from degraded heavy water coolant by chemical and physical separation techniques in the 400-D Area.

^{*} Includes 182,000 Ci accidentally released on December 31, 1975. (See Appendix J.)

Releases in 1975 included about 3,000 Ci of tritium, 200,000 lb of SO_2 , and 200,000 lb of H_2S to the atmosphere, and about 1,600 Ci of tritium to a plant stream.

Savannah River Laboratory (700 Area and TNX-CMX Semiworks). Most of the research, development, and pilot-plant activities at the plant are carried out at the Savannah River Laboratory, where releases or potential releases are small but varied.

In 1975, releases included about 600 Ci of tritium and 0.009 Ci of beta-gamma activity to the atmosphere; about 0.002 Ci of alpha activity to a plant stream; and about 4 Ci of tritium, 0.008 Ci of beta-gamma, and 0.005 Ci of alpha activity to seepage basins.

Support Functions. Plant requirements for water, steam, electricity, sewage treatment, and nonradioactive waste handling are provided in accordance with normal industrial practices. Power plants at SRP burn coal, and releases of NO_X , SO_2 , and particulates from these plants are tabulated in Appendix B. The U.S. Forest Service manages the forest on the plantsite. The Academy of Natural Sciences of Philadelphia and the Savannah River Ecology Laboratory of the University of Georgia conduct studies of changes in the characteristics of the Savannah River and the plantsite with time and of effects of thermal and radioactive effluents from SRP.

Waste Storage Facilities

High-Level Liquid Wastes (200-F and 200-H Tank Farms). Alkaline aqueous wastes containing over 99% of the radioactive fission products from operation of the plant are stored in 30 underground tanks that range in capacity from 750,000 to 1,300,000 gallons. Empty spare waste tanks are maintained at all times for emergency situations. Fourteen tanks are located in F Area and sixteen in H Arca. Of the 30 tanks, the first 16 (built between 1951 and 1955) contain built-in cooling coils and have a 5-ft-high steel pan or saucer between the free-standing primary steel tank and the concrete encasement. The next eight tanks, built between 1958 and 1962, were designed for storage of waste that does not require auxiliary cooling and were fabricated with a single steel shell and a close-fitting, pre-stressed concrete support structure. The most recently constructed six tanks, built between 1967 and 1972, can be cooled with insertable cooling coils and have a full-height secondary steel liner between the primary tank and the concrete encasement. Seven additional tanks, four in F Area and three in H Area, are presently under construction, and are essentially identical to those described above that were built between 1967 and 1972 except that they will include improved

monitoring capabilities. Additional tanks currently are planned for authorization in FY 1976 through FY 1979 in order to satisfy needs for 1) storage space for new waste generation, 2) replacement of single-wall tanks, 3) replacement of double-wall tanks that have a history of leakage from the primary into the secondary container, and 4) replacement of tanks without full-height secondary containment which have the same fabrication history as the tanks that have leaked waste into the secondary container. The environmental effects of the future tanks are discussed in Section III of this document.

In the 24 years of operation at the site, leakage of waste from cracks in a primary tank past the five-foot-high secondary waste pan or liner and the concrete container into the surrounding ground has occurred only once. $[K-6]^*$ In addition, waste containing an estimated 3000 to 5000 Ci of 137 Cs escaped into the soil below grade adjacent to a tank when the tank inadvertently was overfilled in 1961. Neither of these incidents presented any hazard to employees or the public.

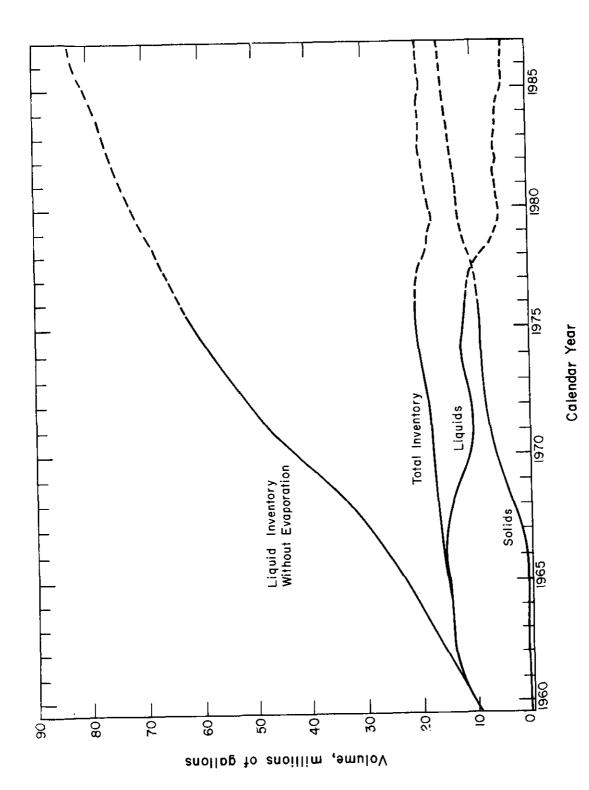
Seven of the original primary tanks have slowly leaked through cracks probably caused by stress corrosion. This leakage has been contained in the annulus between the primary and secondary containers. The most recently constructed six primary tanks (and the seven under construction) were fully stress relieved to prevent stress corrosion cracking. These tanks have full height secondary liners.

A total of about 21 million gallons of waste is stored in the 30 tanks. None of this waste has been generated by reprocessing fuel from commercial power reactors. About 10% of this volume is a sludge that contains as solids almost all of the radioactive components except ¹³⁷Cs. The remaining liquid supernate and crystallized salt contain the ¹³⁷Cs and high concentrations of soluble salts. Figure I-1 shows the historical and anticipated inventory of waste stored in the tank farms. Under present operating practices, the volume stored increased by about 1 million gallons per year. The volume of liquid supernate is decreasing because the waste supernates are being evaporated to leave crystallized salts that occupy less volume and are also less mobile.

Radioactive Solid Wastes (200-Area Burial Ground). All radioactive solid wastes produced at the plant are stored under controlled conditions in a burial ground that occupies 195 acres between F and H Areas. Wastes contaminated with significant amounts of transuranium activity are now being stored in sealed retrievable containers. Other wastes are stored in earthen trenches with a minimum of 4 ft of soil cover.

^{*} Whenever the letter K appears with a number in brackets, the information that follows the brackets is in response to one of the comment letters in Appendix K. For example, [K-6] means the following information is in response to comment letter No. 6 in Appendix K.

I-6



Savannah River Plant Waste Inventory in Tank Farms (Solid lines represent actual volumes; dashed lines represent anticipated volumes.) FIGURE I-1.

Although the buried waste packages may be contacted by rain-water percolating through the soil to the ground water, radionuclides are not expected to reach plant streams except in trace concentrations because of the low leachability of the solid materials, the slow movement of ground water over a long distance, and ion exchange with the soil.

Residual Activity in Idle Facilities. Two production reactors (R and L), the small Heavy Water Components Test Reactor (HWCTR), and a tritium processing facility (232-F) are no longer in service. Each contains some residual activity within its confinement building. Access to these areas is restricted.

Future Activities

It is not possible to accurately predict the operating lifetime of the Savannah River Plant. It is anticipated that production operations at SRP will continue at about their present level for the foreseeable future. Therefore, the quantities of radioactive and nonradioactive materials released to the environment, and the effect these releases may have, are not expected to change appreciably from the 1975 values reported in detail in this environmental statement. The trend will be toward further reductions in releases of some materials, but increases may occur because of changes in production requirements. The accumulation of radioactive liquid and solid waste will also proceed at about the same rate as in 1975. Consequently, the environmental impact of future production levels should not necessitate additional environmental statements. Values for radioactive effluents that resulted in about 99% of the offsite dose commitment in 1975 and for radioactive waste generation are summarized in Table I-1.

TABLE I-1 Radioactive Effluents and Generated Radioactive Wastes at SRP - 1975

| 400 Area | | |
|----------|--------------------------------------|-------------|
| TOO ALEG | SRL | Total |
| 3,000 | 600 | 490,000 |
| - | - | 66 |
| _ | - | 65,000 |
| - | - | 520,000 |
| | | |
| 400 Area | SRL | Total |
| 1,600 | - | 56,000 |
| ons | | |
| | Net Volume | |
| n ——— | → 1.0 | |
| | <u> </u> | |
| | | |
| | | |
| | 3,000 - - 400 Area 1,600 | |

^{*} Includes 182,000 Ci accidentally released on December 31, 1975 (See Appendix J).

2. Anticipated Benefits

Continued waste management operations under ERDA policies will enable the plant to continue providing protection of the population and the environment from adverse effects of radioactive and nonradioactive byproducts while fulfilling its function of producing plutonium and tritium for national defense.

3. Characterization of the Existing Environment

Plant History

The Savannah River site was acquired by the U.S. Government and construction of the plant began in 1950. Heavy water production and nuclear fuel fabrication began in 1952, reactor operation in 1953, and chemical separations in 1954. Controlled waste storage began in the burial ground in 1953 and in waste tanks and seepage basins in 1954.

Baseline measurements of conditions in the Savannah River were made in 1951, before plant startup, by the Academy of Natural Sciences of Philadelphia (ANSP). Continued studies of the river by ANSP have shown that SRP waste management operations have had no significant impact on the health of the river.

The Universities of South Carolina and Georgia also made preoperational studies on the SRP and have studied the effects of SRP waste management operations on the SRP site since 1951. Characteristics of four major onsite streams were changed by the large flow of heated water from the reactors, and small quantities of radioactive materials have accumulated in the stream beds.

Site Characteristics

The Savannah River Plant site occupies a nearly circular area of about 300 square miles (192,000 acres) on the South Carolina side of the Savannah River about 100 air miles or 150 river miles from the river's mouth at Savannah, Georgia. Surface elevations range from about 80 to 300 ft above mean sea level. Surface streams drain to the Savannah River. About 70,000 people consume river water processed by two water treatment plants near the river mouth.

The normal water table is relatively close to the ground surface across the plantsite. Under the major waste storage areas the water table ranges from zero to 60 ft below the surface. Rainfall migrates slowly down to the ground water and then laterally toward the surface streams. Well water for various plant uses is drawn from the large Tuscaloosa aquifer, which is deeper and at a higher artesian pressure than the ground water formations above it that could receive surface water by percolation.

The climate at the SRP site is mild, with an average winter temperature of 48°F and an average summer temperature of 80°F. Average annual rainfall is 47 in., and average relative humidity is 70%. Data on wind speed, direction, and temperature taken every few minutes over a two-year period at elevations up to 1200 ft are used in calculating dispersion of effluents released to the atmosphere.

Atlantic Coast hurricanes seldom subject the site to high winds. Tornadoes of sufficiently high intensity to cause significant radionuclide release are even less likely than the estimated probability ($<10^{-5}$ per year) of any major tornado striking a given area on the site.

The site is in an area where moderate earthquake shocks are expected to occur infrequently. Analysis of plant structures including waste storage tanks has indicated satisfactory stability if subjected to the maximum expected ground acceleration of 0.2 g* (Intensity VII.7 on the Modified Mercalli scale). Seismic monitors in SRP reactor buildings are set to alarm at 0.002 g (Intensity II) and have never indicated a shock of this intensity.

Over 90% of the area of the site is covered by pine and hardwood forests, and habitats range from infertile dry hilltops to continually flooded swamps. Animal life is abundant, including about 7,000 deer.

Natural background radiation (external and internal) is estimated to result in a dose of about 120 mrem/yr to individuals living in the vicinity of the SRP site. Within 100 km of the SRP perimeter, this background dose ranges from 60 to 450 mrem/yr. About another 100 mrem/yr is received from medical X-rays by the average individual in the general area population.

B. ENVIRONMENTAL EFFECTS

1. Effects of Effluents from Normal Operations

The most significant effects are small radiation doses to offsite individuals from unavoidable releases of radioactive materials to the atmosphere and to plant streams. The following pathways contribute nearly the entire population dose caused by SRP releases:

- Inhalation of and immersion in the atmosphere around the plant.
- Ingestion of tritium in milk.
- Ingestion of river water downstream of the plant.

Based on measured 1975 releases of radioactive materials from SRP and environmental monitoring results, the whole body dose to a hypothetical individual living at the plant boundary and consuming river water and 0.5 lb of river fish per week was calculated to be 1.2 mrem, about 0.7 mrem from releases to the atmosphere and 0.5 mrem from releases to plant streams. Maximum doses to individual thyroids are about 84% higher than the whole body dose

^{*} g = acceleration of gravity, 32.2 ft/sec^2 .

from atmospheric releases. It is conceivable that an individual could receive a whole body dose of a few mrem to a few tens of mrem from previously released activity if he used the swamp immediately below the plant boundary for fishing, hunting, or launching boats on the river. Continuous occupancy (not considered credible) in certain areas of the swamp during unflooded periods could result in a dose of about 800 mrem per year from previous SRP releases. These doses may be compared to the SRP guide of 10 mrem per year from SRP releases, the natural background radiation dose of 120 mrem per year, and the ERDA Manual Chapter 0524 standard of 500 mrem per year from plant releases.

During 1975, the SRP dose commitment from atmospheric releases to the entire population of 668,000 within a 100-km radius of the center of the plant was calculated to be 115 man-rem. This compares to an estimated 78,000 man-rem from natural sources and 71,000 man-rem from medical x-rays to the same population. About 83% of the population dose from SRP atmospheric releases was from tritium, 8% from ⁴¹Ar, up to 8% from ¹⁴C, and 0.8% from the fission products krypton and xenon.

During 1975, the SRP dose commitment to the effective consumer population of 70,000 using water from the river was calculated to be a maximum of 15.5 man-rem. This compares to an estimated 8,200 man-rem from natural sources and 7,400 man-rem from medical x-rays to the same population. About 99% of the population dose from SRP liquid releases was from tritium. The SRP contribution to the radiation dose commitment to these population groups is small relative to the range of natural background radiation in the area surrounding SRP.

[K.11] The maximum number of health effects that might occur to the surrounding population as a result of releases of radio-active materials from SRP was calculated based on conservative factors published in the BEIR report, (see pp III-36 to III-40), and the above (70-year) SRP dose commitments which include the major effects of persisting radioactivity (as described in Appendix G). The hypothetical number of eventual cancer deaths caused by the 1975 SRP releases was 0.026 to 0.003% of the 858 annual cancer deaths expected for the same population. Cumulative offsite effects that would follow shutdown of SRP production facilities would decrease to a small fraction of the present values as discussed in Section III.A.4.

Releases of nonradioactive materials from SRP are all within applicable state standards with the exception of fly ash emissions from seven of the twelve coal-fired power plants. Fly ash emissions from these plants are up to five times the 1974 South Carolina emission standards. Installation of separators which reduce emissions of the particulates from the largest power plant below applicable standards is underway and is scheduled for completion in 1976.

Estimated aqueous releases from the proposed Vogtle Nuclear Plant of the Georgia Power Company would contribute a dose commitment equivalent to about 3% of the SRP dose commitment to downstream users of river water. Estimated atmospheric releases from the Barnwell Nuclear Fuel Plant under construction by Allied-General-Nuclear Services would contribute a dose commitment somewhat higher than the SRP dose commitment to the population surrounding SRP. The combined atmospheric dose commitment would be about 0.8% of the dose to the same population from natural background radiation.

Potential Effects of Abnormal Operation of Waste Storage and Handling Facilities

Potential radiation doses have been calculated for postulated low-probability accidents accompanied by unlikely failures of protective devices installed to prevent large amounts of activity from reaching plant streams. The highest calculated whole body dose was for a hypothetical individual who consumed water that was withdrawn from the river during the few minutes that a pulse of activity passed. Using pessimistic assumptions, a dose of 3.9 rem was calculated for an accident in which a hydrogen explosion in a high-level liquid waste tank results in a spill of waste supernate that reaches the ground surface. The analysis assumed failure of the storm sewer diversion system to divert contaminated surface drainage to a lined retention basin, provided as a consequencelimiting system. The guideline emergency dose for reactors, given in 10 CFR 100 1 as 25 rem to the whole body, is used for comparison because there are no specifically applicable emergency guides for waste management operations. An explosion in a tank farm evaporator or a spill of fresh waste enroute to the tank farm could result in similar calculated doses under the same pessimistic assumptions.

The highest calculated organ dose was for a hypothetical individual at the plant boundary in the path of the dispersion plume from an assumed fire in the burial ground. The bone dose from a postulated fire in an open container used for storing ²³⁸Pu waste was calculated to be 161 rem. This dose is about equal to the guideline emergency bone dose of 150 rem given in the design criteria for new plutonium facilities.²

C. UNAVOIDABLE ADVERSE EFFECTS

The most significant adverse effect of normal effluents from waste management operations is the small offsite population dose from unavoidable releases of tritium and noble gases to the atmosphere. Other unavoidable effects are small radioactive releases to plant streams, continued interference with normal plant and

animal life in streams and portions of the swamp that receive heated reactor cooling water, and release of nonradioactive effluents, primarily SO_2 and fly ash, from the coal-fired power plants.

The most significant potential effect of radioactive waste storage is the potential for release from unlikely accidents. This potential is being reduced primarily by evaporation of liquid waste to a less mobile salt cake and by construction of improved containers for transuranium solid waste. Other unavoidable effects are the slow migration of tritium and strontium (90 Sr) from seepage basins to plant streams and the desorption of small amounts of cesium (137 Cs) previously deposited in plant streams and the swamp.

D. ALTERNATIVES

Alternatives for the management of SRP wastes are:

- 1. Store no additional radioactive waste onsite.
- 2. Store no radioactive waste onsite and return waste management areas to their pre-plant condition.
- 3. Indefinitely continue present waste management practices without additional improvements.
- 4. Continue existing operations and improve waste management practices in accordance with ERDA policies and standards.

It is assumed that present and projected national defense requirements necessitate continued operation of SRP production facilities. Under these circumstances, Alternatives 1 and 2 would require transporting large quantities of radioactive liquid and solid wastes over the public travel ways, increasing potential public exposure to these wastes. Alternative 3 does not allow for improvements in waste handling procedures. Alternative 4 is the base case described in this environmental statement. Specific options that are scheduled or being studied under the base case are summarized below.

1. Normal Releases of Radioactivity

Tritium absorption equipment being installed in one of the tritium processing facilities is estimated to reduce the annual population dose from atmospheric releases by about 5%. Other means of reducing tritium and noble gas releases are also in progress.

Several means of reducing the amounts of radionuclides sent to plant streams and seepage basins are under study. In some cases, releases of effluents to seepage basins rather than directly to plant streams is a satisfactory way to reduce total offsite doses, even though the effluents meet the standards for direct release.

2. Waste Handling and Storage

Further protection against unlikely releases of high-level liquid waste to the river or to the atmosphere will be provided. Current SRL and SRP studies are aimed at determining the best interim techniques and the long-term costs and benefits of various options for treating SRP waste. None of the possible options for long-range management of this waste are being foreclosed by current or projected operations.

Methods for treating and storing radioactive solid wastes for long periods are also under study. Current techniques are designed to ensure retrievability for future processing.

E. RELATIONSHIP BETWEEN SHORT-TERM USES AND LONG-TERM PRODUCTIVITY; LAND USE PLANS, POLICIES, AND CONTROLS; AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

Continued control of waste effluents and stored wastes according to ERDA policies and standards will protect the offsite environment and minimize onsite effects for the long term. Waste management operations use only a small fraction of the plantsite. This fraction will require surveillance and control for the foreseeable future. Decommissioning will be addressed as part of the longer range waste management program.

There are no known conflicts with national, state, or local plans and programs for the use of the land affected by waste management operations at SRP.

Permanent commitments of resources include relatively small uses of energy and construction materials as well as the long-term commitment of small areas on the plantsite for waste management operations.

F. COST-BENEFIT ANALYSIS

A qualitative comparison of alternatives shows that continued management of SRP wastes in accordance with ERDA policies and standards is preferable to other general alternatives and will not result in excessive adverse effects on the population or the environment. Continued study and implementation of specific improvements based on cost-benefit analyses is required under this base case.

G. REFERENCES

- 1. U.S. Code of Federal Regulations, Title 10, Part 100, Revised 1975.
- 2. ERDA Manual, Appendix 6301, Part II, Section I, September 17, 1974.
- 3. W. L. Marter. Gamma Exposure Rates in the Steel Creek and Little Hell Landing Areas. Report No. DPST-74-551 (1975).
- 4. ERDA Manual Chapter 0524, "Standards for Radiation Protection," November 8, 1968.
- 5. The Effects on Populations of Exposure to Low Levels of Ionizing Radiation (Beir Report). Report of the Advisory Committee on the Biological Effects of Ionizing Radiations, Division of Medical Sciences, National Academy of Sciences, National Research Council (1972).